BIOLOGICAL EVALUATION

COOPERATIVE GYPSY MOTH PROJECT
FOR
INDIANA
2010

Gypsy moth is moving into northern Indiana from the infestations in Michigan and Ohio. Its movement is by natural spread and short distance transport by human activities. To detect the introduction of this pest, the State of Indiana has surveyed since 1972. From 1988 to 1998 the survey used a one-mile grid in the northern third of Indiana and a two-mile grid in the remainder of the state. In 1999, Indiana adopted the Slow-The-Spread (STS) survey protocol developed by the USDA Forest Service. Traps are set in detection (2K or 3K) and delimit (250M, 500M or 1K) grids across the state. The 2009 survey set 7,424 detection traps and 3,746 delimit traps, for a total of 11,170 traps set across the state. Twenty one counties were not trapped in 2009, mostly for economic reasons, but also because of negative trap catches in previous years.

The STS analysis of the 2009 trapping data in Indiana identified potential problem areas (PPA's) at 62 locations in Indiana. The analysis identified higher or equivalent moth catches in delimiting survey grids placed at each site compared to detections and delimits in prior years and recommends action in these areas. In addition to the data from the STS analysis, field survey by Indiana DNR staff detected multiple life stages in some PPA's. Indiana DNR and USDA, Forest Service staff reviewed the analysis and life stage data to define which PPA's have a very low population or low population and make a recommendation in some areas for treatment using mating disruption or Btk. This information, along with locations of gypsy moth habitat within those PPA's, was then used to define where treatment boundaries would be designated for those areas. In several areas identified by the analysis, the decision to delimit the area was chosen due to a lack of multiple life stages found or lack of habitat. The five proposed treatment sites in six counties are based on the trapping surveys, STS analysis, egg mass detections and habitat.

Table 1 & Figure 1 show in the six northern counties with proposed treatment sites, the mean number of gypsy moths caught in detection traps generally increased slightly or stayed the same from 2005 to 2007, increased in 2008, then decreased in 2009.

Map 1 shows various moth lines and several potential problem areas across northern Indiana based on STS analysis of 2009 data.

Map 2 and 3 show the number of gypsy moth detected in each county for 2009 and 2008, respectively.

Map 4 shows the 10-moth line from 2005-2009. This analysis places the STS action area below the 10-moth line.

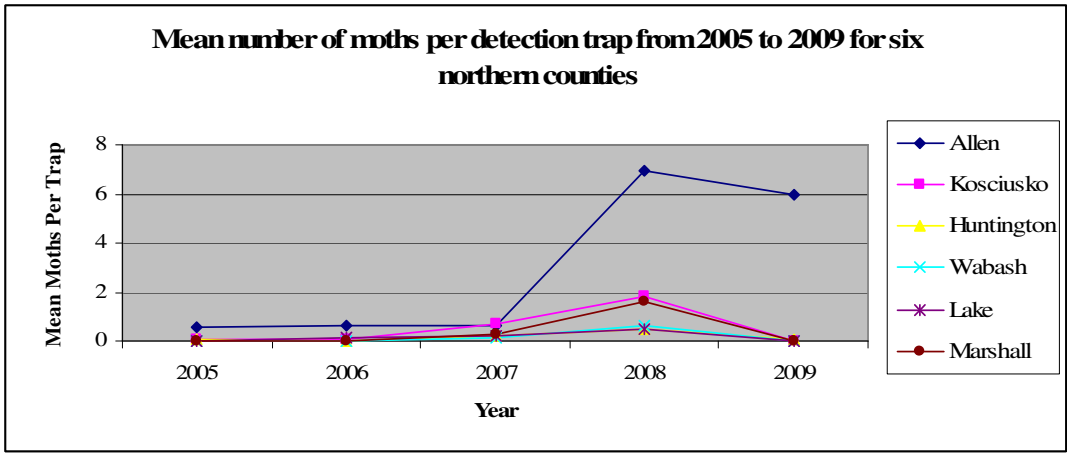
The site and moth trapping data can be viewed at the STS website - http://da.ento.vt.edu/Region1/d2009/tabdec.html

Table 1. Mean number of moths per detection trap (milk carton and delta) in the proposed counties for 2005 to 2009.

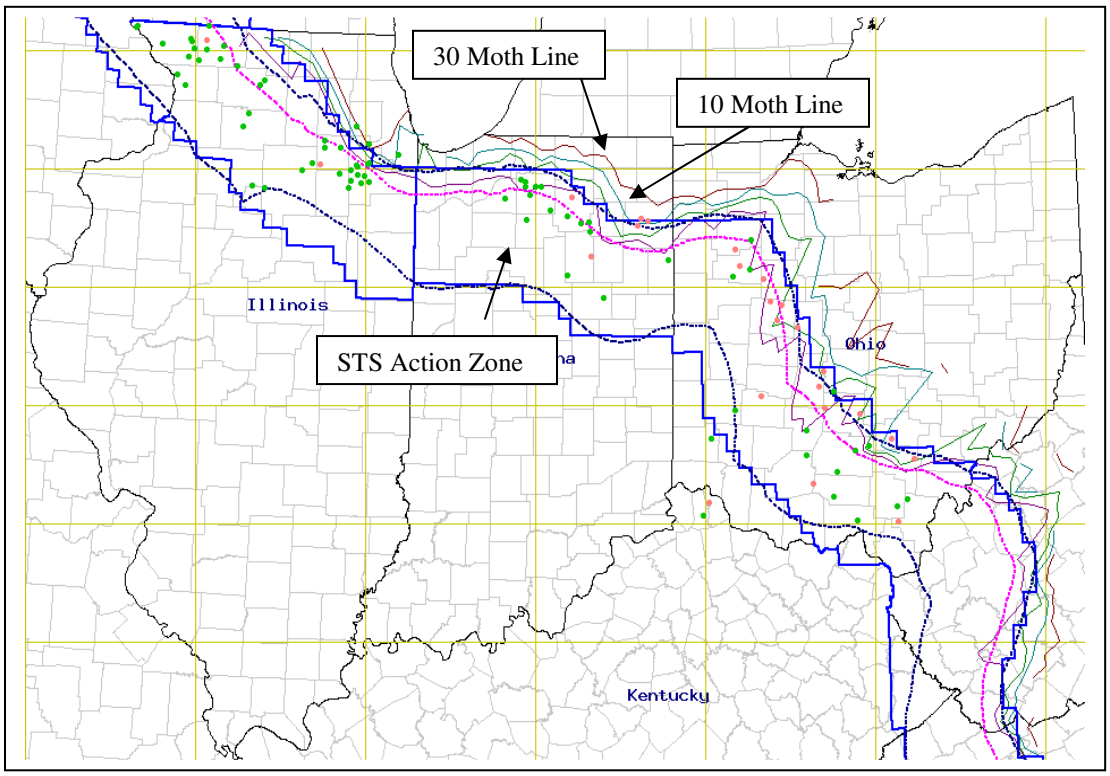
County	2005	2006	2007	2008	2009
Allen	0.55	0.60	0.66	6.97	6.0
Kosciusko	0.05	0.09	0.67	1.82	0.0
Huntington	0.04	0.01	0.20	0.51	0.05
Wabash	0.03	0.02	0.13	0.64	0.0**
Lake	0.03	0.11	0.21	0.52	0.0**
Marshall	0.01	0.02	0.27	1.62	0.0**

**The number of moths caught in detection traps in the 2009 survey in these counties was zero. There was a mean number of moths caught per delimit trap from 0.8 to 2.8 in these counties and these numbers were used to assist in determining treatment decisions and boundaries.

Figure 1. Mean number of moths per detection trap from 2005 to 2009 for six northern counties.

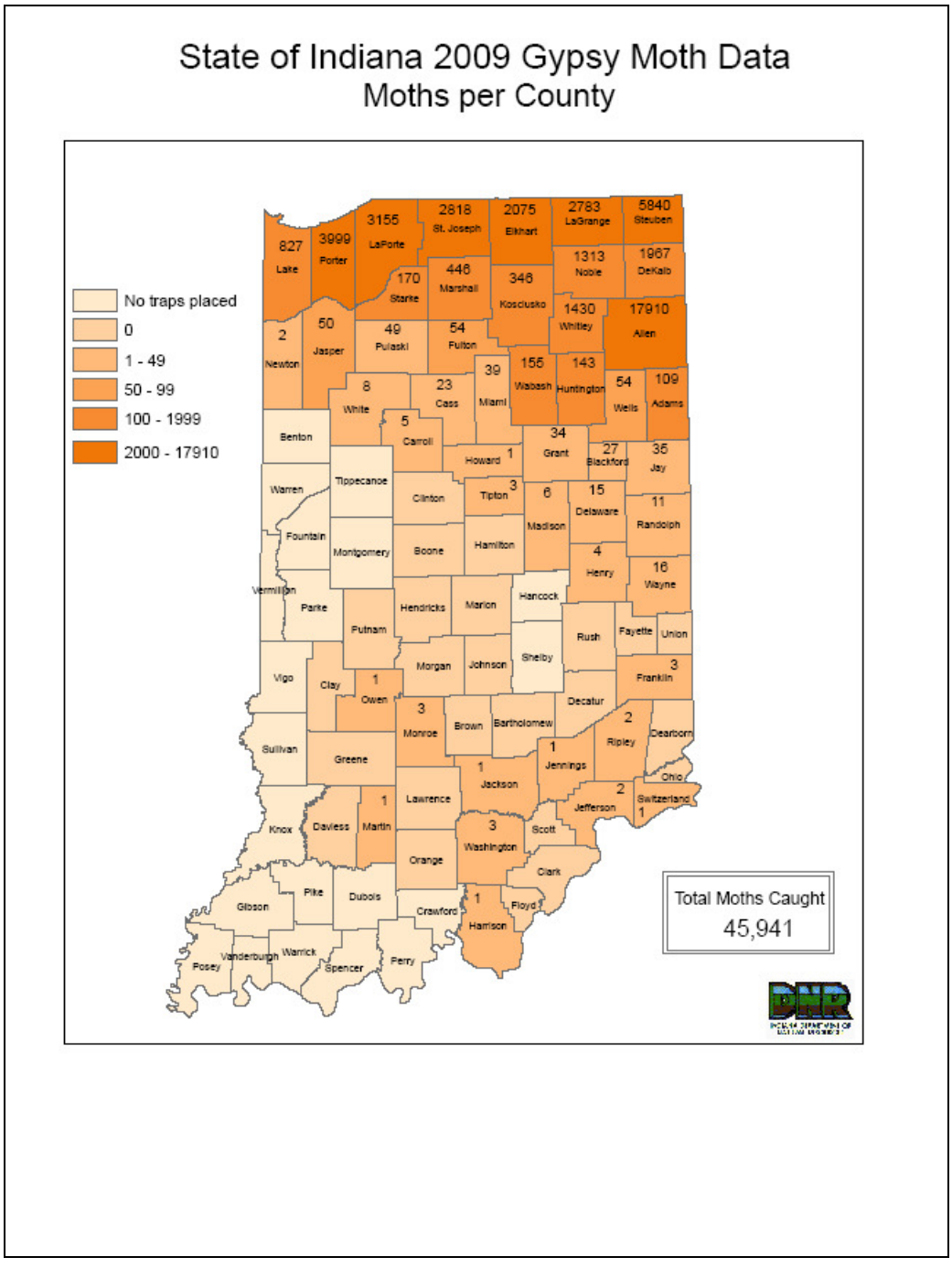


Map 1. Results of the 2009 Gypsy Moth Slow-The-Spread Analysis showing moth lines and several potential problem areas for northern Illinois, northern Indiana and Ohio (red dots indicate suggested treatments and green dots indicate suggested delimit survey as determined by the analysis of the 2009 trapping data).

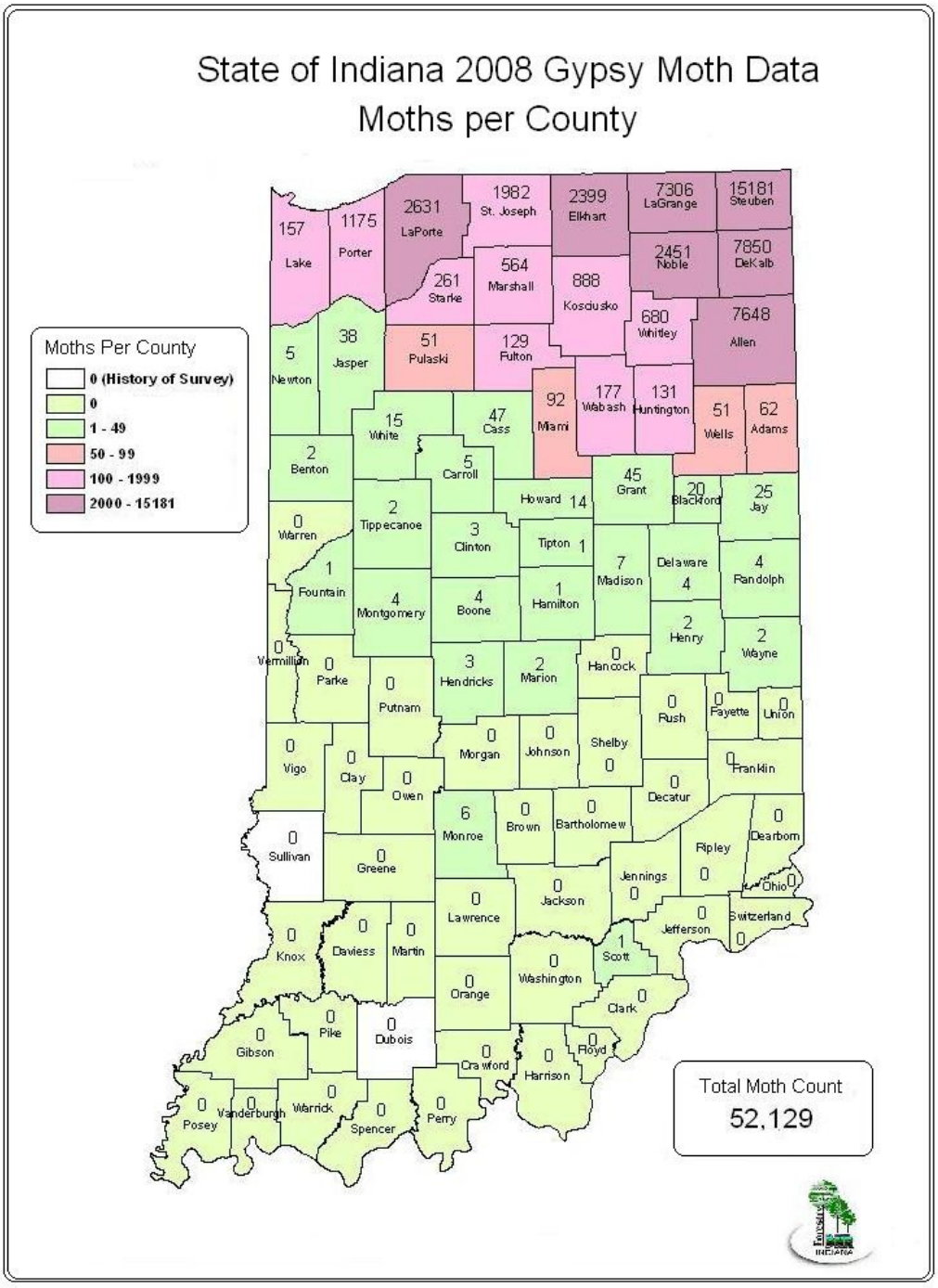


- Area suggested by the decision algorithm for treatment
- Area suggested by the decision algorithm for delimiting
- Recommended project boundaries
- State boundaries
- County boundaries
- Boundary of STS action zone in the following year
- 1-moth line
- 3-moth line
- 10-moth line
- 30-moth line

Map 2. Male moth catches by county for 2009.



Map 3. Male moth catches by county for 2008.



Map 4. The 10-moth line of Gypsy Moth in Indiana from 2005 to 2009.